

CLAIMS

1. A medical light source comprising one or more flexible light emitting diodes formed upon respective regions of flexible substrate.
2. A medical light source according to any preceding claim in which the flexible light emitting diodes are formed upon a single flexible substrate.
3. A medical light source according to any preceding claim arranged to be sufficiently flexible to permit the light source, in operation, to conform to a portion of the body of a patient to which light from the light source is to be applied.
4. A medical light source according to any preceding claim in which the flexible light emitting source comprises an organic light emitting diode.
5. A medical light source according to any preceding claim in which the flexible light emitting diode emits light at a wavelength suitable for diagnosis or therapy of a medical condition of the human or animal body.
6. A medical light source according to any preceding claim in which the flexible light emitting diode emits light in the red to infra-red region of the spectrum.
7. A medical light source according to any preceding claim in which the flexible light emitting diode emits light in the near infra-red region of the spectrum.
8. A medical light source according to any preceding claim in which the flexible light emitting diode emits light in a non-visible region of the spectrum.
9. A medical light source according to any preceding claim comprising a plurality of flexible light emitting diodes arranged to emit light at mutually distinct wavelengths.
10. A medical light source according to any preceding claim comprising at least two light emitting diodes arranged to emit at mutually distinct wavelengths, the light emitting diodes being arranged such that light at those distinct wavelengths is emitted substantially evenly across the sum of the areas defined by the light emitting diodes emitting at those wavelengths.

11. A medical light source according to any preceding claim comprising a photo-detector arranged, in operation, to detect light emitted from the one or more flexible light emitting diodes.
12. A medical light source according to any preceding claim comprising a strap
5 comprising attachment means for attachment of the medical light source around or to a patient's body.
13. A medical light source according to claim 12 in which the flexible substrate forms the strap.
14. A medical light source according to any one of claims 12-14 in which the
10 attachment means is one of hook-and-loop means, barb-and-slot means, and self-adhesive means.
15. A medical light source according to any preceding claim in which the light emitting diode comprises a triplet emitter.
16. A medical light source according to any preceding claim in which the light emitting
15 diode comprises one or more components arranged to wavelength-shift light emitted within the light source from a first wavelength to a second wavelength.
17. A medical light source according to claim 16 comprising a fluorescent emitter and in which wavelength-shifting is at least partially achieved by means of a fluorescent emitter.
- 20 18. A medical light source according to any one of claims 16-17 comprising a wavelength-shifting grating and in which wavelength-shifting is at least partially achieved by means of the wavelength-shifting grating.
19. A medical light source according to any one of claims 16-18 comprising a micro-cavity and in which wavelength-shifting is at least partially achieved by means of the
25 micro-cavity.
20. A medical light source according to claim 19 in which the second wavelength is determined by tuning of the micro-cavity.
21. A medical light source according to claim 20 in which the micro cavity is tuned to emit light at a third wavelength substantially perpendicular to the plane of the light emitting
30 diode.

22. A medical sensor comprising one or more flexible photodetectors formed upon respective regions of flexible substrate.
23. A medical sensor according to claim 22 comprising a medical light source according to any one of claims 1-21 and in which at least one of the one or more flexible photodetectors is arranged so as, in operation, to detect light emitted by at least one of the flexible light emitting diodes.
24. A medical sensor according to claim 23 in comprising two or more flexible light emitting diodes arranged to emit light on a time-interleaved basis.
25. A medical sensor according to any one of claims 22-24 comprising a plurality of the medical light sources arranged, in operation, to emit light at wavelengths suitable for diagnosis of levels of at least one of oxygen, carbon monoxide, and bilirubin in a human or animal body.
26. A medical sensor according to any one of claims 22-25 in which the light detector is an organic photovoltaic detector.
27. A method of operating a medical light source according to claim 15 in a pulsed mode having a predetermined pulse period, such that the triplet emitter is activated for a period calculated to ensure that emissions fall to acceptable levels before a subsequent light pulse is emitted.
28. A method according to claim 27 in which the predetermined pulse period is less than or equal to 25 ms.
29. A method of operating a medical sensor according to any one of claims 22-26 in a pulsed mode, timing of emitted light pulses being determined responsive to an indication of the pulse timing of a patient to which the sensor is applied.
30. A medical light source substantially as described in the foregoing description with reference to the accompanying figures.
31. A medical sensor substantially as described in the foregoing description with reference to the accompanying figures.
32. An organic light emitting diode arrangement comprising an organic light emitting diode arranged to emit light in the blue region of the spectrum and a wavelength-

converting layer arranged to convert blue emissions from the organic light emitting diode to emissions in the infra-red region of the spectrum.

33. An organic light emitting diode arrangement according to claim 32 in which the wavelength-converting layer comprises a phosphor based compound.

5 34. An organic light emitting diode arrangement according to any one of claims 32-33 in which the wavelength-converting layer comprises an infra-red edge filter.

35. An organic light emitting diode arrangement substantially as described in the foregoing description with reference to the accompanying figures.

10 36. An organic photovoltaic detector arrangement substantially as described in the foregoing description with reference to the accompanying figures.